

Missed Opportunities for Optimization of Cholesterol Management in Clinical Atherosclerotic Cardiovascular Disease

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BACKGROUND

- Patients with very high-risk clinical atherosclerotic cardiovascular disease (ASCVD):
 - At high risk for recurrent cardiovascular events,
 - Require a high-intensity statin therapy, and
 - Should target LDL <70 mg/dL
- Despite a strong recommendation by American College of Cardiology (ACC) and American Heart Association (AHA)¹
 - Statin are often omitted
 - High intensity statin is often insufficient to achieve lipid-lowering goals
- Addition of non-statin lipid-lowering therapies recommended for patients on maximally tolerated statin therapy with LDL ≥70 mg/dL

PURPOSE

The purpose of this study was to identify missed opportunities for cholesterol management optimization among ambulatory care patients.

STUDY METHODS

Adult patients at four specialty ambulatory care clinics between May 1, 2020, to May 1, 2021

Inclusion Criteria

- Between 21-85 years of age
- History of clinical ASCVD

Exclusion Criteria

- No lipid panel within one year from the start of the study period

Retrospective Chart Review

LDL ≥70 mg/dL

LDL <70 mg/dL

Primary outcome: Proportion of missed opportunities for cholesterol management (LDL ≥70 mg/dL)

Secondary outcome: Characterization of lipid-lowering pharmacotherapy in missed opportunities (LDL ≥70 mg/dL on dual statin and non-statin therapy, on statin alone, on non-statin only, and with no lipid-lowering treatment)

STATISTICAL ANALYSIS

- Baseline characteristics and outcomes were compared using chi-squared/Fisher's exact test or Kaplan-Meier as appropriate.

RESULTS

Table 1. Demographics of patients with an LDL ≥/≤ 70

Characteristics	Total (n=1019)
Gender, n(%)	
Female	609(59.8)
Male	410(40.2)
Age, mean(SD)	60.4(12.6)
Race, n(%)	
Black or African American	780(76.6)
White	200(19.6)
Other	29(2.9)
Asian	10(1.0)
Ethnicity, n(%)	
Not Hispanic or Latino	1006(98.7)
Hispanic or Latino	13(1.3)
Smoking status, n(%)	
Former	428(42.0)
Never	394(38.7)
Current	197(19.3)
Clinical ASCVD	
Stroke, n(%)	467(45.8)
MI, n(%)	409(40.1)
PAD, n(%)	81(8.0)
TIA, n(%)	62(6.1)
Medical Co-morbidities	
HTN, n(%)	779(76.5)
Diabetes, n(%)	474(46.5)
Hyperlipidemia, n(%)	451(44.3)
HF, n(%)	216(21.2)
CK/ESRD, n(%)	216(21.2)
HIV, n(%)	140(13.7)
Cirrhosis, n(%)	19(1.9)

1,492 patients included:

- 68% (n=1,019) had missed opportunities for cholesterol management (LDL > 70 mg/dL)
 - Of these, 736 (72.2%) were prescribed a statin; 283 (27.8%) were not
 - Additionally, 136 (13.4%) were prescribed a non-statin agent; 29 (2.9%) were prescribed non-statin therapy only

Table 2. Statin agents & intensities

	ALL 1019(68.3)	Statin + non-statin 107(10.5)	Statin alone 629(61.7)
Statin agent			
Atorvastatin (Lipitor), n(%)	506(68.8)	64(59.8)	442(70.3)
Rosuvastatin (Crestor), n(%)	100(13.6)	26(24.3)	74(11.8)
Pravastatin (Pravachol), n(%)	84(11.4)	9(8.4)	75(11.9)
Simvastatin (Zocor), n(%)	38(5.2)	6(5.6)	32(5.1)
Lovastatin (Mevacor), n(%)	6(0.8)	1(0.9)	5(0.8)
Pitavastatin (Livalo), n(%)	2(0.3)	1(0.9)	1(0.2)
Fluvastatin (Lescol), n(%)	0	0	0
None, n(%)	283(27.8)	0	0
Statin intensity			
Low	32(4.3)	2(1.9)	30(4.8)
Moderate	242(32.9)	40(37.4)	202(32.1)
High	462(62.8)	65(60.8)	397(63.1)

Table 3. Non-statin agents

	ALL 136(13.4)	Statin + non-statin	Non-statin alone
Non-statin agent			
Omega-3 Fatty Acids, n(%)	66(48.5)	53(49.5)	13(44.8)
Ezetimibe, n(%)	48(35.3)	40(37.4)	8(27.6)
Fenofibrate, n(%)	10(7.4)	8(7.5)	2(6.9)
PCSK9 inhibitors, n(%)	9(6.6)	5(4.7)	4(13.8)
Bile Acid Sequestrant, n(%)	2(1.5)	1(0.9)	0
Gemfibrozil, n(%)	1(0.7)	0	1(3.5)

CONCLUSIONS

- Missed opportunities for cholesterol management are common, even in patients at the greatest risk for recurrent cardiovascular events.
 - Similar to prior literature, the results suggest that a majority of patients do not meet the LDL goal of <70 mg/dL.
- There is a low uptake of non-statin therapies in patients unable to tolerate statin therapy or unable to achieve an LDL <70 mg/dL on statin monotherapy.
- Further analyses needed to investigate the reasons for the barriers to the optimization of statin and non-statin therapies in patients with clinical ASCVD and close the gap on these disparities to ensure optimal clinical outcomes.

REFERENCES & DISCLOSURES

- Grundy SM, Stone NJ, Bailey AL, et al. 2018 AHA/ACC/AACVPR/AAPA/ABC/ACPM/ADA/AGS/APHA/ASPC/NLA/PCNA Guideline on the Management of Blood Cholesterol: Executive Summary: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. J Am Coll Cardiol. 2019 Jun 25;73(24):3168-3209.

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